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## **CLAIMS**

- 1. Non human transgenic animal, being trangenic for an antibody or fragments thereof and having a phenotype reminiscent of a human pathology.
- 2. A non-human transgenic animal according to claim 1 wherein the human pathology is included in the following group: neurodegenerative syndromes; muscular atrophy/dystrophy; immune disorders.
- 3. A non-human transgenic animal according to claim 2 wherein the human pathology is the Alzheimer disease (AD).
  - 4. A non-human transgenic animal according to claim 3 exhibiting at least one of the anatomical, histological, molecular or phenotypic markers included in the following group: deposition in Central Nervous System (CNS) of plaques of amyloid precursor protein (APP) or of  $\beta$ -amyloid protein, hyperphosphorylation of the tau protein, neurofibrillar pathology, deficits in the cholinergic system.
  - 5. A non-human transgenic animal according to claim 4 further exhibiting at least one of the anatomical, histological, molecular or phenotypic markers included in the following group: glial activation, neuronal loss, cortical and hippocampal atrophy, muscular myositis.
  - 6. A non-human transgenic animal according to claim 5 exhibiting the following anatomical, histological, molecular or phenotypic markers: deposition in Central Nervous System (CNS) of plaques of amyloid precursor protein (APP) or of  $\beta$ -amyloid protein, hyperphosphorylation of the tau protein, neurofibrillar pathology, deficits in the cholinergic system, glial activation, neuronal loss, cortical and hippocampal atrophy, muscular myositis.
  - 7. A non-human transgenic animal according to claim 6 exhibiting the anatomical, histological, molecular or phenotypic markers as defined in Table 1.

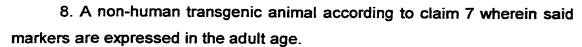
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- 9. A non-human transgenic animal according to claim 7 wherein the occurrence of the tau hyperphosphorylation and/or the  $\beta$ -amyloid protein deposition in the back or lower limb skeletal muscles and/or the atrophy of said skeletal muscles are present concomitantly to the earliest occurrence of other neurological markers.
- 10. A non-human transgenic animal according to any of previous claims being transgenic for an anti-NGF (Nerve Growth Factor) antibody or fragment thereof.
- 11. A non-human transgenic animal according to claim 10 wherein the anti-NGF antibody blocks the binding of NGF to its receptors.
- 12. A non-human transgenic animal according to claim 10 wherein the anti-NGF antibody is expressed mainly in the adulthood.
- 13. A non-human transgenic animal according to claim 12 wherein the anti-NGF antibody levels in the serum of the adult animal are comprised between 50 ng/ml and 500 ng/ml.
- 14. A non-human transgenic animal according to claim 10 wherein the anti-NGF antibody is the monoclonal anti-NGF  $\alpha$ D11 antibody.
- 15. A non-human transgenic animal according to claim 14 wherein the  $\alpha D11$  antibody is a  $\alpha D11$  chimeric antibody.
- 16. A non-human transgenic animal according to claim 15 wherein the chimeric antibody is a humanised chimeric antibody.
- 17. A non-human transgenic animal according to any of previous claims wherein the animal is a mammalian.
- 18. A non-human transgenic animal according to claim 17 belonging to the murine genus.
- 19. A non-human transgenic animal according to claim 18 belonging to the *Mus musculus* BS6JL strain.

of a subject.

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20. A method for an early diagnosis of neurodegenerative diseases comprising the monitoring of the occurrence of the tau hyperphosphorylation and/or amyloid deposition in the back or lower limb skeletal muscle sample

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- 21. Cells derivable from the non-human transgenic animal according to any of claims 1-19 and secreting the transgene antibody.
- 22. Use of cells according to claim 21 for the selection of molecules pharmacologically effective in neurodegenerative and/or muscular pathologies and/or immune disorders.
- 23. Use of cells according to claim 21 for the grafting in the brain of a non human primate.
- 24. Method for the preparation of a non-human transgenic animal according to claim 1 comprising essentially the steps of:
- a) preparing a first non-human transgenic parent animal for the light chain of an antibody and a second non-human transgenic parent animal for the heavy chain of the same antibody,
  - b) breeding the two transgenic parent animals;
- c) selecting the progeny expressing both the light and the heavy chain.
- 25. Method for the preparation of a non-human transgenic animal according to claim 10 comprising essentially the steps of:
- a) preparing a first non-human transgenic parent animal for the light chain of an anti-NGF antibody and a second non-human transgenic parent animal for the heavy chain of an anti-NGF antibody,
  - b) breeding the two transgenic parent animals;
- c) selecting the progeny expressing both the light and the heavy chain.
- 26. Use of the non-human transgenic animal according to claim 2 for the study of neurodegenerative syndromes.

- 27. Use of the non-human transgenic animal according to claim 2 for the study of pathologies of muscular system.
- 28. Use of the non-human transgenic animal according to claim 3 for the study of Alzheimer's disease.
- 29. Use of the non-human transgenic animal according to claim 2 for the selection of compounds pharmacologically effective in the treatment of pathologies included in the following group: neurodegenerative syndromes; muscular atrophy/dystrophy, immune disorders.

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- 30. Use of the non-human transgenic animal according to claim 3 for the selection of compounds pharmacologically effective in the treatment of the Alzheimer's disease.
- 31. Use of the non-human transgenic animal according to claim 10 for the study of pathologies related to an NGF deficit.
- 32. Use of the non-human transgenic animal according to claim 10 for the screening of compounds potentiating the activity of NGF.
- 33. Use of the non-human transgenic animal according to claim 10 for the screening of compounds stimulating the expression and/or the release of endogenous NGF.
- 34. Use of the non-human transgenic animal according to claim 10 for the screening of formulations of NGF or derivatives thereof able to cross the blood-brain barrier.
- 35. Use of NGF or of derivatives or fragments thereof for the preparation pharmaceutical compositions able to bind autoanti-NGF antibodies in the brain of AD affected subjects.
- 36. Use of NGF or of derivatives or fragments thereof for the preparation of pharmaceutical compositions for the treatment of muscular pathologies.
- 37. Pharmaceutical compositions including NGF (Nerve Growth Factor) for the therapy of the muscular pathologies.